(b) While in technological terms we are ready with the design of Advanced Heavy Water Reactor which would produce around two third of its energy from Thorium, large scale deployment of Thorium for power generation will be mainly in the third stage. This can start once large generation capacity based on fast reactors has been set up in the second stage of our nuclear power programme.

Contracts signed by ISRO

848. SHRI R.C. SINGH: Will the PRIME MINISTER be pleased to state:

(a) the details of contracts that ISRO signed during the last five years, including the recent contract with Aerion Space;

(b) whether it is a fact that in 2010 ISRO is going to launch satellites of France, Algeria, Germany, Canada, Indonesia, etc.;

(c) if so, the details thereof;

(d) what would be the income that ISRO is going to generate through the above agreements and in what manner it is planning to generate revenue through such commercial dealings?

THE MINISTER OF STATE IN THE PRIME MINISTER'S OFFICE, (SHRI PRITHVIRAJ CHAVAN): (a) The details of contracts that ISRO signed during the last five years, including the recent contract with Ariane Space:—

Date of Contract	Agencies	Purpose	Status
22nd August, 2007	Arianespace	Launch of INSAT-4G	Launch Scheduled for 2010

The details of contracts signed by ISRO through its commercial arm ANTRIX, for launch of foreign satellites are furnished in the given Statement (*See* below).

(b) Yes, Sir.

(c) In 2010, ISRO is going to launch the following satellites of foreign, countries with Piggyback along with our satellites using Polar Satellite Launch Vehicle:—

(i) ALSAT from Algeria weighing about 150 Kgs.

(ii) NLS.-6 Nano satellite from Canada weighing about 25 Kgs.

(iii) AISAT from German Space Agency, Germany weighing about 10 Kgs.

(iv) X-Sat from Nanyang Technological University of Singapore weighing about 110 Kgs

(v) PORTIERES Nano satellite from Japan weighing about 10 Kgs.

(d) The income that ISRO is going to generate through the above agreements made by its commercial arm, Antrix Corporation Limited is about 6 MILLION US Dollars. In future, it is

planned to generate revenues through such commercial dealings including dedicated launches that can be spared from PSLV or GSLV after meeting the national needs.

Statement

Satellites of other space agencies launched by ISRO/ANTRIX, India on PSLV

Date of Contract Signed	Agency with which contract Signed	Country of Satellite ownership	Name of the Satellite	Status
1	2	3	4	5
January, 2004	Cosmos International Satellitenstart GmbH	Italy	AGILE	Successfully Launched
September, 2004	Aerospace Electric Tech	Indonesia	LAPAN-TUBSAT	Successfully Launched
August, 2005	Israel Aircraft Industry	ISRAEL	TECSAR	Successfully Launched
February, 2006	Argentina association for space Tech	Argentina	PEHUENSAT-1	Successfully Launched
August, 2006	University of Toronto	Canada	NLS-4 (Cluster of 6 Nano Satellites)	Successfully Launched
August, 2007	ISIS Innovative	Netherland	CUBSATS (Cluster of 4 Satellites)	Successfully Launched
September, 2007	University of Toronto	Canada	NLS-5	Successfully Launched
September, 2007	COSMOS International	Germany	Rubin-8	Successfully Launched
April, 2008	CARLO-GAUAZZI Space (IMSAT)	ITALY	IMSAT	To be launched
September, 2008	Algerian Space Agency	Algeria	Alsat-2A	To be launched
October, 2008	OHB System AG	Germany	Rubin-9.1	Successfully Launched

1	2	3	4	5
December, 2008	Kalnin Space System Engineering	Germany	Rubin-9.2	Successfully Launched
December, 2008	University of Toronto	Canada	NLS-6	To be launched
March, 2009	Osaka Institute of Technology Japan	Japan	PROITERES	To be launched
April, 2009	Cosmos International Satellitenstart GmbH	Germany	EnMAP Satellite	To be launched
May, 2009	MDA	Canada	Sapphire	To be launched
June, 2009	University of Toronto	Canada	NLS-7	To be launched
August, 2009	National Inst. of Aeronautics and Space – Lapan	Indonesia	LAPAN-A2 and Lapan Orari	To be launched

Satellite launched by ISRO

849. SHRI RAJKUMAR DHOOT: Will the PRIME MINISTER be pleased to state:

(a) whether it is a fact that ISRO launched seven satellites, one Indian and six of foreign countries on 23rd September, 2009;

(b) if so, the details thereof;

(c) the number of Indian satellites that are in the orbit and capable of transmitting movement of even tiny creatures on earth and underneath across borders; and

(d) if so, whether their services are available to security and intelligence agencies?

THE MINISTER OF STATE IN THE PRIME MINISTER'S OFFICE, (SHRI PRITHVIRAJ CHAVAN): (a) and (b) Yes, Sir. India has successfully launched the Oceansat-2 satellite and six other small satellites of foreign countries by its PSLV-C14 flight on 23rd September, 2009.

(c) Generally the resolutions of the imaging cameras onboard the remote sensing satellites are not designed to detect tiny creatures on and underneath earth. As of now, the fine resolution of the Indian remote sensing satellites is 0.8 meters, which is at par with that of advanced remote sensing satellites of other nations.